TIIAP FY 1999
Project Narrative

Seba Dalkai Boarding School, Inc.

Grant # 4-60-99023
Community Networking
Winslow, Arizona

EXECUTIVE SUMMARY

This project is intended for the "Community Networking" primary application area with "Public Services" as the secondary application area. The principle anticipated outcome include:

- Application of VSAT Internet Satellite Technology to five communities of the Southwest Navajo Nation (Teesto, Dilkon, Indian Wells, Leupp, Bird Springs) to empower community members through knowledge and shared decision making.

- Deliverance of interactive, user-centered community networking/public services information kiosks at each site (Touch screen kiosks will display a carefully designed front web page for easy utilization for both English and Navajo speaking individuals to readily network with governmental resources and other local communities.)

- Enhancement of governmental interactive community information systems to support the 1998 Local Governance Act of the Navajo Nation.

The most notable impacts of this project will be:

- Dramatically elevated intercommunity/global networking and access to greatly needed public services

- The extensive sharing of project capabilities with other Navajo communities leading to reservation-wide expansion of the VSAT Network; and

- Serving as a national model for isolated Native American and other communities.

The prestigious Learning Technology Center, University of Texas at Austin will assume responsibility for project evaluation which will carefully examine the use, effects, problems and limitations of the proposed wireless system in meeting the unique needs of the remote rural areas of the Navajo Nation. Other project partners include a variety of both local and nationally renowned experts including Vice-President Gore's National Reinvention Initiative, Northern Arizona University, the Navajo Nation Governmental Divisions, and Indian Health Services.

Southwest Navajo Nation Virtual Alliance

PROJECT DEFINITION

Defining a specific need or problem - The Navajo Nation is the largest Native American Tribe in the United States that extends over a vast three state geographical area. The extreme remoteness of the region, severe economic constraints and many other existing disparities have severely hampered efforts to promote community networking and effectively provide much needed public services. The lack of modern telecommunications and information infrastructure on the Navajo Nation is a fundamental stumbling block inhibiting significant progress in these areas.

The five target communities or "chapters" (local government entities) of the "Virtual Alliance" project are distributed over a 5,000 square mile region which is part of a Federal Enterprise Zone. Severe social, ecological, health and economic problems have plagued the 9,500 residents of the area for many years. Business development effort have repeatedly failed, chronic health problems such as diabetes are on the rise, youth gang participation is increasing, care for the elderly and child protection are continuing problems. There are no cable television services, no local radio stations, no local television stations and extremely limited cellular telephones services. The ratio of people to residential phone numbers is 49:1. There is no public library, no public transportation, and only 2 emergency dirt air strips. Absent also is the Internet. (See "Reducing Disparities" section for additional need-related data.)

A possible solution to these problems and also a complicating factor is the new Local Governance Act passed by the Navajo Nation Council in 1998 which has transferred substantial governing authority to local Chapters without providing the technical means. A variety of administrative functions including accounting, payroll, property management, day-to-day direction of Chapter services and communications are now required of the Chapter staff and their leadership. Without a sharing of information resources and community networking to solve local problems, the Chapters cannot hope to manage their new responsibilities. Due to the distances to public service providers under the Indian Health Service and the Navajo Nation Government Divisions, often up to 300 miles, it is frequently impossible for central government services and information resources to be accessed by citizens.

Internet access can be a solution to information access but under existing conditions is prohibitively expensive. Some tribal institutions on the western side in the Navajo Nation's second-largest city - paid $17,400 per year for a single 56-kbps data line to an Internet assess point. Institutions have waited two years for the installation of additional service. The telecommunications infrastructure, especially as it pertains to small and isolated institutions - is nonexistent. There is no prospect of future service provision unless institutions and agencies (including the Bureau of Indian Affairs and Indian Health Services) provide for their own future connectivity through extraordinary measures. The problem is the separation and isolation of people who have meager financial resources and live in a nation-state of the same condition. By banding together, this collection of Chapter Houses seeks to open the communications flow - and set an example - by looking skyward and reaching electronically into existing services located at great distances but made available at the speed of light.

Proposing a credible solution that employs network technologies - This project will provide a wireless solution — for places without adequate means to connect with many tribal, federal, and

state agencies and institutions where resources do exist. Some of these resources must be converted to oral Navajo in order to be used by people unable to read or write either Navajo or English. The networking technology of choice is VSAT, with workstations and kiosks placed in strategic and available locations at each of the five Chapter sites: Teesto, Dilkon, Indian Wells, Luepp, and Bird Springs. Coordinated by staff at Northern Arizona University (NAU) and hosted on servers on the NAU-Flagstaff campus, these communities will have access to posted and routinely updated information and services provided by dozens of participating agencies and institutions. Community networking, facilitated by this system, will permit sharing of information and finding solutions to common problems among local chapters.

Identifying realistic, measurable outcomes that you expect to result from implementation of the project - Our first major goal of this project is to equip all five project sites with high quality VSAT Internet systems and provide for long term maintenance for these systems. Durable kiosk touch-screen work stations will also be installed and maintained at each project site. A second goal of our project is to deliver interactive, user-centered community networking and public services resources to end users. Training will be provided by NAU technical staff to Navajo chapter members in network usage and Internet access. Community networking in the form of shared data, teleconferencing, electronic town hall meetings, community surveys, and shared administrative problem solving will be desired outcomes. The third goal of our project is to enhance information management for interactive community networking for the Navajo Nation. Navajo Nation Division information resources will be configured on a common template through a dedicated NAU server for ready bilingual access for end users. This information will provide the end user with powerful tools to deal with business loans, home loans, health alerts, public safety alerts, range management problems, election protocols, language and culture maintenance, community events information, etc. A variety of on-line seminars, policy and procedures and libraries will be made available to Chapter leaders for enactment of the Navajo Nation Governance Act.

With two-way VSAT connectivity (512-kbps down and 128-kbps up), high-speed Internet protocol and service will be used to transfer text and voice files for agency services as basic as Indian Health Service flyers (printed in unintelligible English to a non-English reader or speaker) made useable by touching a symbol and hearing its contents presented orally in the Navajo language

EVALUATION

The project evaluation will examine the use, effects, benefits, problems and limitations of the wireless system in addressing the needs of underserved residents in remote rural areas on the Navajo reservation.2

Evaluation Questions: The evaluation will include the acquisition and analysis of data related to questions such as:

- What is the extent of community involvement in planning community-sponsored projects (number participating, duration of projects, etc.)?
- How effective is the training and technical support provided to system users and information providers?
- What are the frequency and duration of use of the VSAT service delivery system by Navajo

Chapter clients and students?

- What are the patterns and frequency of use of specific online client resources and services and electronic mentoring by system users? How many users have been on the system? For what purposes?
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- What is the perceived ease of access to and effectiveness of VSAT services in addressing client and needs?
- What are the frequency and pattern of use over time of the Navajo language and cultural instruction courses?
- What are client perceptions of the quality of instructional and tribal information resources and services available on the system?
- What are the perceived barriers and facilitators related to system implementation and use of the VSAT delivery system for project purposes?
- What is the perceived ease of use and what problems are encountered in using kiosk interfaces?
- What are the startup and ongoing operational costs of the system?
- What are the performance and reliability characteristics of the VSAT system and kiosks over the duration of the project as noted in operation and maintenance records and user evaluations?
- What is the perceived effectiveness of training and technical support provided to VSAT system client users and information providers?

Evaluation Strategy - The evaluation will include both quantitative and qualitative approaches to addressing the above questions. An unobtrusive approach will be used to gather information related to frequency and patterns of use and the kiosks will provide convenient means for clients and information providers to indicate problems encountered. Short online survey forms will be used to obtain information related to user evaluations of system effectiveness.

Data Collection - To acquire the needed data, the evaluation process will include:

(1) interviews and surveys of VSAT system client users, agency information providers and system technical support staff;

(2) analysis of records of online use as well as qualitative data obtained through kiosk use, a short user survey, requests for help or problems noted; and

(3) evaluator observations of selected sites.

Data Analysis - The data will be analyzed through tabulations, frequencies and trend analysis. This quantitative data will assist in establishing patterns and frequency of usage. Qualitative data will be analyzed by constituent groups i.e.: client user responses, information service providers and system maintenance personnel. Responses will be contrasted between constituent groups based on specific information categories.

Evaluator - Dr. Paul Resta, a Ruth Knight Millicent Centennial Professor of Education and Director of the University of Texas Learning Technology Center, will serve as the Project Evaluator. Dr. Resta has had extensive research and evaluation experience and previously served as Chief of Research, Planning and Technology for the U.S. Department of Education. (See enclosed "bio" for additional details.)

Budgeting of resources and staffing for evaluation:- Approximately 6% of the annual budget

is devoted to evaluation. The evaluation mechanism utilizes an efficient approach using an external evaluator who will set the overall evaluation design and the data acquisition plan. Internal evaluation and data collection will be conducted by the various partner groups. Data collected through online resources and project staff will be made available to the external evaluator for analysis and reporting. Two semi-annual site visits will be made by the University of Texas Evaluator.

SIGNIFICANCE

Describing innovation: The project will establish the viability of wireless networking for profoundly isolated and underserved communities, and will promote interest among those disillusioned by the historic recognition that "you can't get there from here." The excitement (and wonder) produced through discussions with tribal agencies and Reservation-based Federal offices is a clear indication of the potential for, and willingness to be, a service provider. VSAT— while still expensive for applications with a small "n" - is the perfect carriage and distribution system for people in places where topography, demographics, income, or distances rule out conventional common-carrier availability. (It is emphasized here that none of the Chapter Houses are eligible for E-Rate subsidies.)

Proof of VSAT's characteristic simplicity, dependability, data volume and imperviousness to environmental conditions manifested through this project will lend it real significance for the future of remote connectivity.

A further innovative element in this project is the adaptation of video and audio streaming technology to deliver Navajo bilingual information and interface for remote rural end users. The ability of monolingual Navajo speakers to actively engage government services using their own language and a specifically tailored web service will prove to be a national, if not international model for bilingual network access and language preservation. The Navajo Nation possesses a sizable governmental public service apparatus. The establishment of user centered interactive community resources mediated through the Internet would be of particular use and interest to other civic administrative bodies and potentially to other small nations. The dissemination technique of a portable VSAT system in itself will demonstrate a means of drawing in significant additional user populations and contribute to project significance.

Establishing a model project - We are confident that the proposed "Virtual Alliance" will provide the necessary infrastructure and training to effectively address our defined problems and also serve as a national model for various Native American tribes and other rural, isolated communities. Such a community network will assist our Navajo people and serve as a national model in countless ways including: providing the means for the central Navajo government to enact the Local Governance Act by empowering local chapter staff via training and continuous online technical assistance; allowing chapters to easily network with each other to address common concerns; creating an efficient means for clients to communicate with service providers; creating a community electronic bulletin board, expanding avenues for culturally appropriate economic development (i.e., the international marketing of Navajo arts & crafts via the Internet); providing the means for Youth Town Hall Meetings and Navajo presidential forums; providing distance learning educational

opportunities; providing an effective means of communication to cope with natural disasters and emergency relief; and supplying a method to implement: a suicide hotline, electronic court appearances and an employment information hotline.

Officials of the BIA have been pursuing a VSAT solution for BIA schools over a two-year period. The leadership at Seba Dalkai School has been tracking the BIA-led program with a hope of incorporating the concept for Chapter Houses and benefitting from the BIA's discussions with vendors and bandwidth providers (Hughes) as well. It is anticipated that the momentum gained through a TIIAP-approved pilot project will give impetus to a multi-agency union leading to serving all 110 Chapter Houses on the Navajo Reservation, as well as providing a road map for all other reservations experiencing significant infrastructure deficits.

Several successful VSAT applications are currently being used at school sites on the Navajo Nation for Internet access. We hope to build on these proven approaches. In addition, we have profited substantially from a review of the Council of Athabascan Tribal Governments TIIAP project which seeks to address many of the Internet connectivity needs we have recognized locally within a similar environment. The Bethel Broadcasting TIIAP sponsored delivery consortium provided guidance for our project insofar as future sustainability is concerned. In our case, the tribal government assumes the cost of Internet connectivity after the project ends. The North Slope Borough has many parallel environmental and social obstacles to community networking which we face. Their solutions of linkages using compressed video and Wide Area Networks were an inspiration to our Southwest Navajo Nation network and video streaming technology approach.

PROJECT FEASIBILITY

Technical Approach: All parties involved in the project will use the Internet to transfer and update files, hold interactive conferencing sessions, access Real Audio and Real Video files hosted by NAU on Real Broadcast Network's servers, and download kiosk files for touch-screen access. Tribal and Federal Agencies will provide web-site and web-page services stored on NAU's Star server. Navajo speakers will translate materials provided in English text on audiotapes, which will be converted to digital files by NAU and downloaded to Chapter House kiosks. With Internet connectivity to a VSAT carriage provided by a Salt Lake, Utah up-link/down-link service, the two-way loop is complete.

Applicant Qualifications - All five VSAT systems and attendant equipment will be provided, installed and warranted by a successful bidder. The turnkey project will include network management services. A Fort Defiance Agency Technology Specialist will maintain the equipment and provide user training, and NAU will provide technical support (training, web-site construction, audio and video encoding, conference hosting and data entry). The University of Texas-Austin and Northern Arizona University are experienced in all aspects of telecommunications networking and management, including web-based service provisions. Navajo Nation and Indian Health Service Management Information Systems personnel are qualified to enter web data and updates through the community network servers.

Technical assistance will be provided by Dr. Paul Resta, Director Learning Technology Center of the University of Texas, and by Edward Groenhout, Vice-President for Strategic Initiatives at Northern Arizona University. An Alliance Advisory Council composed of twelve members has already been formed. Each Chapter House will donate and dedicate space and staff oversight.

Further, several dozen tribal government programs have committed services to help Navajo Nation Division MIS officers construct web-sites, and serve Internet-mediated client interactions through office hours, document scanning, etc.

Budget, Implementation Schedule, and Timeline - Overall project management will be provided by a half-time Project Coordinator contracted through Northern Arizona University. Fiscal management will be provided by Seba Dalkai School Board, Inc. The emphasis for the budget distribution for this project has been to maximize end-user benefit and provide substantial support for building institutional capacity. $475,000 has been garnered as matching funding from a variety of project partners. The matching is primarily valuable personnel services directly contributing resources for the benefit of the end-users. The $475,400 of Federal aid requested is largely distributed between equipment and the necessary personnel support to insure project success. For the complete Budget Narrative, Implementation Schedule and Timeline please see the detailed attachments.

Sustainability - The application includes projected costs for bandwidth use and up-link/down-link services for a three-year period, after which the Chapter Houses are committed to assuming the bandwidth costs at the beginning of the fourth year. During the second year, the Project Coordinator and fiscal manager will work with Navajo Nation delegates to secure Navajo Nation support to underwrite ongoing expenses pertaining to the expansion of service delivery and client services benefitting tribal government offices and agencies. The Navajo Nation has clear authority to earmark financial support to specific Chapter House projects.

COMMUNITY INVOLVEMENT

Partnerships - The concept for this project has been developed by Seba Dalkai School Board, Inc. ("Seba Inc."), a small locally based non-profit organization on the Navajo Nation composed solely of Navajo individuals concerned with improving the education and quality of life of our Navajo people. In order to help actualize the vision of creating "The Southwest Navajo Nation Virtual Alliance," Seba Inc. has been networking with an impressive array of project partners including a variety of local leaders and community groups, public service providers, universities and nationally renowned experts.

Northern Arizona University has already proven to be extremely valuable in helping to crystalize our project vision into a concrete action plan. In that this project is very much in harmony their educational commitments, NAU has agreed to coordinate the development of the Virtual Alliance network, including the development of the unique bilingual web page for the project. Paul R. Neuman, the Director of NAU Television Services, will be utilizing his considerable expertise in network based information distribution to benefit the project. Ed Groenhout, NAU's Vice-President for Strategic Initiatives, will be assisting the project with his talents in the field of audio streaming, plus periodically meeting with the Alliance Advisory Council.

Dr. Paul Resta, Director of The Learning Technology Center, University of Texas at Austin, is respected worldwide for his significant contributions to the field of Educational Technology and has agreed to spearhead the evaluation component of this project and provide technical advisement. (Please refer to the "Evaluation" section for more details.) Over the years

Dr. Resta has clearly demonstrated his interest and commitment to improving the quality of life on the Navajo Nation and he is personally very excited regarding his key role in the "Virtual Alliance." Mayer Max, of Vice-President Gore's National Reinvention Initiative, has also agreed to provide advice and technological support to the project.

The Navajo Nation governmental divisions and Indian Health Services will be contributing personnel and expertise to a significant degree for the project. (See matching fund data in the budget section for complete details.) These service providers are extremely interested in many of the proposed grant outcomes, especially the fact that clients will be able to use interactive Internet technology at the target Chapters to make appointments with direct service personnel, complete electronic applications and surveys, search their databases to find solutions to their problems, etc. (Please refer to the matching fund section of the budget narrative, plus the letters of commitment and project personnel biographies in the appendix for additional details concerning our project partners.)

Involvement of the Community - The first strategy "Seba Inc." initiated to solicit community involvement was to host an open community meeting to share the general vision of the project and discuss other possibilities to include in the project plan. Attending this meeting were the Tribal Council Delegates from involved "Chapters" (local government entities), community members, elders, medicine men and school officials. As a result of this initial meeting, "The Southwest Navajo Nation Alliance Advisory Council" was formed to provide guidance and direction to the project. Members of this council subsequently met with local service providers to solicit their project support, then met with NAU staff on numerous occasions to begin the grant writing process. To maintain community involvement throughout the grant, arrangements have been made for the "Advisory Council" to meet on a quarterly basis to assure that the project is responsive to the additional community needs that are sure to arise during the project period.

Support for End Users - The end users that will ultimately reap the benefits of this project are a diverse group including both English speaking and predominantly Navajo speaking individuals of all ages. An integral component of this proposal involves on-going technical support and training for these end users focusing on the staff and community members of each participating chapter. A comprehensive training package has been formulated involving a coordinated effort of several entities: NAU staff, the VSAT vendor, the Ft. Defiance Agency Technology Specialist (who is fluent in the Navajo language) and the Chapter Community Coordinators. Since these Community Coordinators are also Navajo speaking and are employed full-time at each of the sites, they will participate in all aspects of the training program and play the lead role in providing the day-to-day training for the community members utilizing the system, including providing the supplemental assistance needed for those individuals with disabilities.

Privacy - The Virtual Alliance network will utilize secure servers and reasonable resource software in order to interface into the World Wide Web. This will allow confidential information to be shared among the project participants without outside interference. The consortium will employ the most up-to-date software, encryption programs and other reasonable measures to protect materials being distributed among its membership. When necessary, certain confidential materials will utilize some encryption procedure so as to protect the participants' identities. Additionally, many of the service providers involved in the project already have established policies related to confidentiality (i.e.,

Social Services, local hospitals, etc.), which will certainly be honored and incorporated into this project design.

REDUCING DISPARITIES

Description and Documentation of the Disparities - The primary disparities that have prevented our Navajo population from benefitting from information infrastructure technologies have been lack of access due to depressed economic conditions, plus the obvious language barrier faced by non-English speaking individuals. A few noteworthy relevant statistics include: The population of the Navajo Nation is 165,614 spread out over a huge geographic area of 25,351 square miles covering three states (see maps in Appendix for details), with a per capita income of $4,106.00. Over 57.4% of all Navajo families live below the poverty level. Of 92,671 persons aged 16 and older, 27.9% are unemployed, with 75% of the adult population using Navajo as their primary means of communication. Half of all houses on the Navajo Nation lack complete plumbing and kitchen facilities and 77.5% of all houses lack telephones. Economic, historical and other factors have also contributed to unusually high rates of alcohol and drug abuse, diabetes, school drop-outs, teenage pregnancy, suicide, domestic violence and related social problems.

In summary, due to the extreme needs of this population as is detailed above and in the "Project Definition" section of this proposal, The Navajo Nation is often equated with the status of a third world nation. (This region has also been Federally designated as an "Enterprise Community" - See related verification letter in Appendix.) Since only a handful (less than 1%) of the few families that have electricity and a phone actually have had the financial resources to purchase their own computer, this project will play an integral role in closing this disparity gap.

Strategies for Overcoming Barriers to Access - Since there is such a profound need for the various public service organizations to address the great challenges facing the Navajo Nation, we sincerely believe that our proposed "Virtual Alliance" is critical in order to truly maximize the effective use of the limited resources that currently serve this vast region. This project not only will provide technological access to our Navajo community members, it will incorporate special provisions to accommodate the unique needs of this population. This will include the delivery of interactive, user- centered community networking/public service information touch-screen kiosks to each site featuring a carefully designed "front" web page for easy utilization by both English and Navajo speaking individuals. This will allow users to readily network with a wide variety of valuable resources both within the Navajo Nation and internationally. The comprehensive training program detailed above, focusing on Chapter personnel but also including end-users, will assure that instruction will be provided in both the English and Navajo languages, as needed.

DOCUMENTATION AND DISSEMINATION

Documentation Plan - Working in close association with the University of Texas, we have developed a documentation plan that is carefully aligned with the project evaluation plan. Documentation techniques that will be utilized include the following: on-going daily logs of kiosk usage at each Chapter site; training participant lists; training feedback forms completed by participants; and focus groups of system administrators and users that will meet periodically to

discuss problems and solutions. Some data will be stored electronically via the server located at NAU including information regarding the frequency/duration of the VSAT service delivery system and patterns of use; plus short online survey forms completed by system users regarding perceived ease of access and effectiveness of VSAT services in addressing client and service provider needs.

The Advisory Council will review project data on a quarterly basis in order to evaluate project progress and make recommendations for system improvement. Seba Dalkai School Board, Inc. will use its digital video camera and nonlinear digital video editor to create a living document detailing the evolution of the "Virtual Alliance Project." The UT evaluator will conduct a formal external evaluation of the project semi-annually through the careful examination of the data discussed above, plus interviews and on-site personal observations.

Information Dissemination Plan - The capstone of the project's dissemination plan is a portable VSAT system that will be temporarily installed and utilized at 30 prospective future Chapter sites throughout the Navajo Nation. Through this strategy, each major reservation community will be exposed to a hands-on training and experience of this valuable technology so that they will develop a full understanding of our project benefits. In addition, the Project Director will be responsible for writing and submitting articles for publication in various professional journals including: Winds of Change (American Indian Science & Engineering Society, Journal of American Indian Education (Arizona State University), local Navajo Nation Chapter Newsletters, Philanthropy Journal (nonprofits and technology newspaper), and the publications of the American Library Association (ALA News - Online).

We have also budgeted for the Project Director to attend a minimum of one relevant conference per year to aid in disseminating project information. This could include the annual conferences of the National Association of Tribal Chairmen, the National Congress of American Indians, The Association of Management & International Association of Management and/or the Canadian Evaluation Society. The videos that will be recorded and edited to document the evolution of the "Virtual Alliance" will be shared at such conferences, and whenever else it would be beneficial to promote the project goals.